

## ABSTRACT

A wavelength selective optical cross-connect includes a first demultiplexor feeding into individually removable modules that in turn feed a first multiplexor, such that the cross-connect is expandable and repairable on a wavelength or waveband basis. The modules desirably include multiple optical components in the optical path, with components in each module matched to others in that module to provide module-to-module variation below that of the variation in module components. The modules desirably include an additional demultiplexor and multiplexor. The modules also desirably include wavelength or narrowband amplification together with power equalization. The modules may also include a switch fabric. Alternatively, the switch fabric may be provided in the form of a separate removable switch module or modules, with various technologies employed in various switch modules, including manual switching with automatic connection discovery, with simple plug-in upgradeability to modules having automatic or remotely actuated switching.